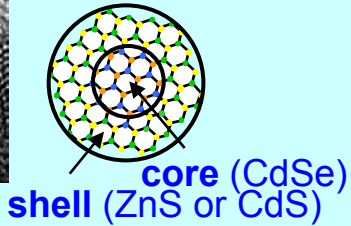
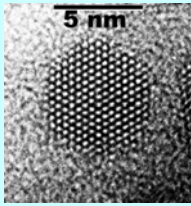
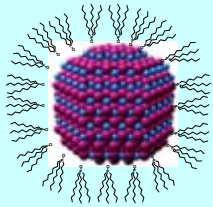


Development of Q-dots as biological probes



- broad absorption
- narrow emission (~ 25 nm)
- symmetric emission (no tail)
- very good photostability
- long lifetime (>20 ns)
- detectable by electron microscopy
- ideal for multicolor measurements (flow cytometry, colocalization, FISH...)

SPECIFIC AIMS:

1. Develop optimized qdots synthesis, surface derivatization and bio-conjugation schemes
2. Develop optical instruments optimized for the detection, imaging and spectroscopy of qdots
3. Use qdots to solve a few important biological problems relying on their unique photophysical properties

PARTNERS:

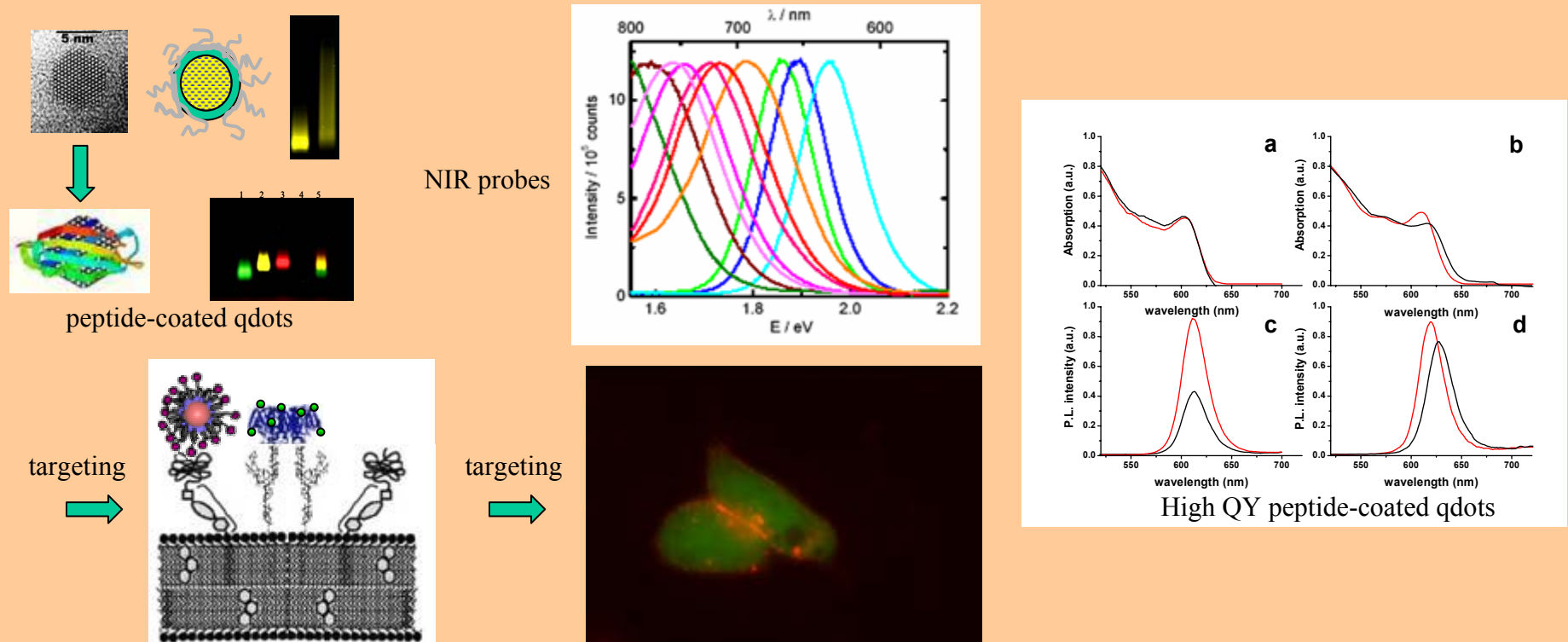
Prof. Paul A. Alivisatos, Co-PI
Department of Chemistry
University of California at Berkeley

Prof. Hsiao-Ping Moore
Department of Molecular and Cell Biology
University of California at Berkeley

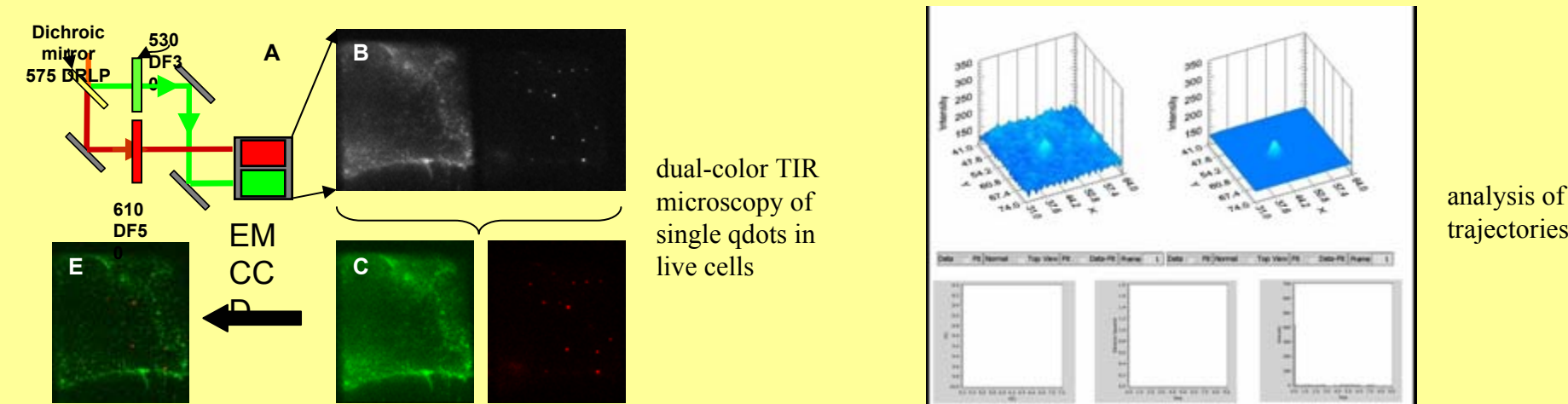
Prof. Carolyn Larabell
Department of Anatomy
University of California at San Francisco

Prof. Sam Gambhir
Department of Radiology, Stanford University
The Crump Inst., UCLA

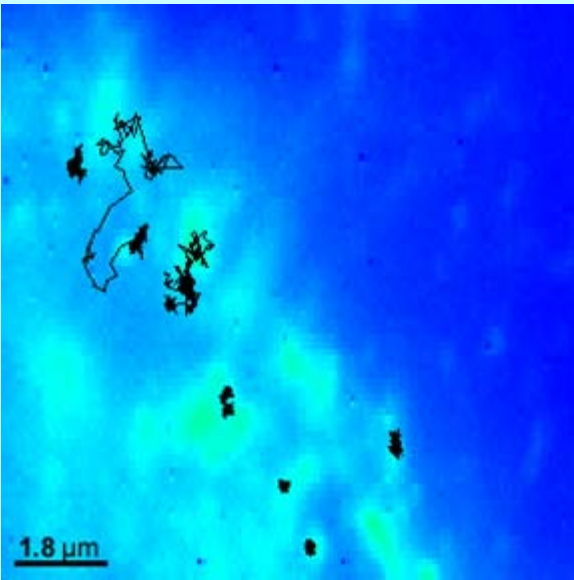
1. Semiconductor q-dots synthesis, surface derivitization and bio-conjugation



2. Q-dots-optimized optical instrumentation for detection, imaging and spectroscopy

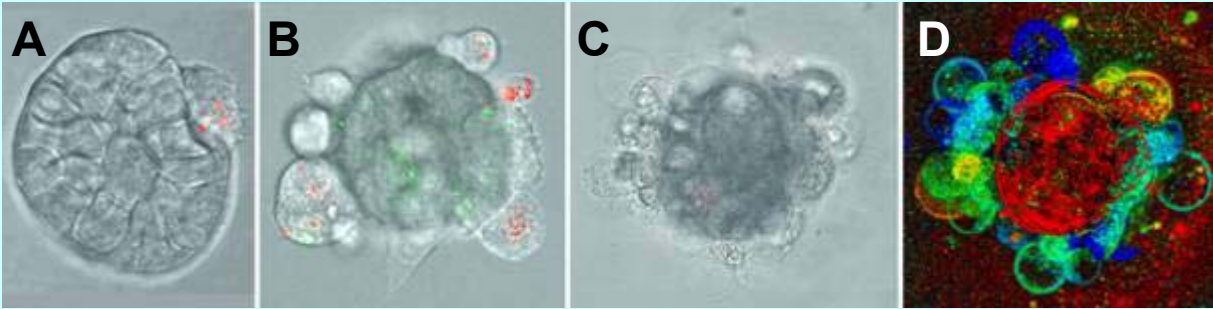
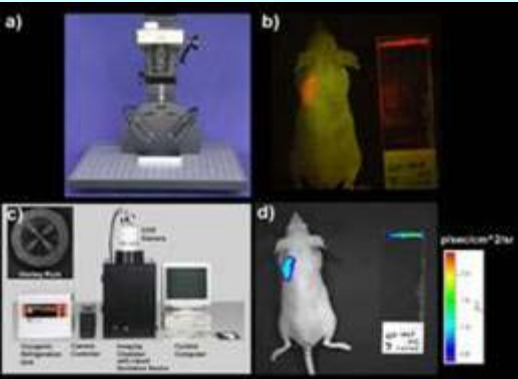
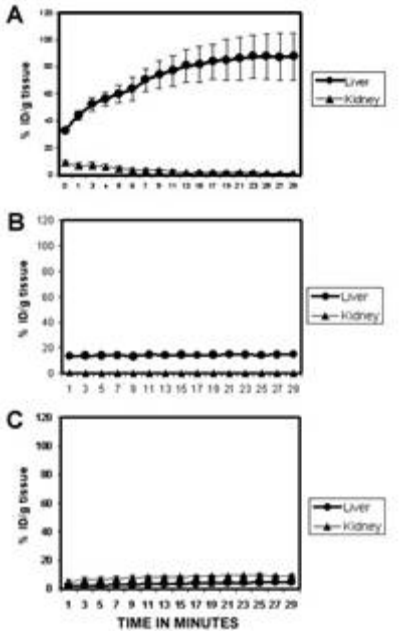
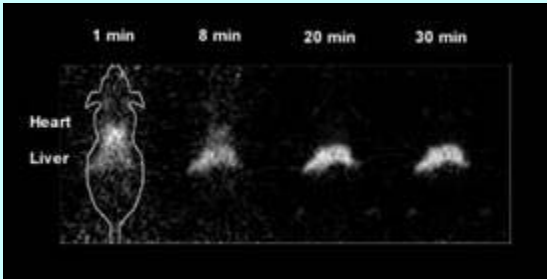


3. Biological assays with q-dots

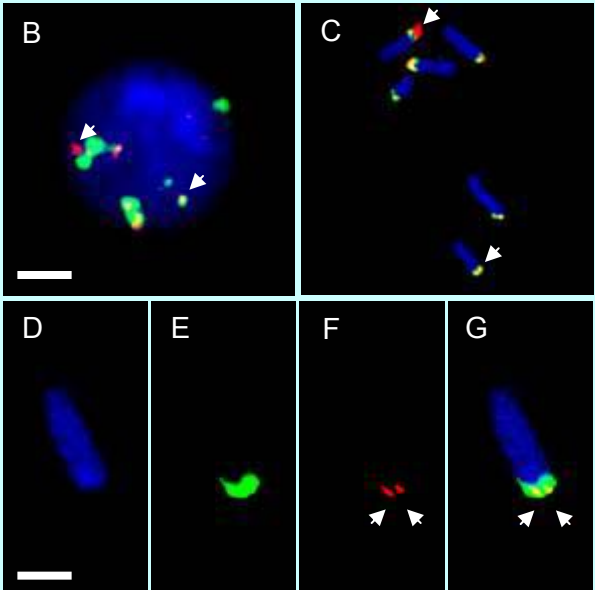


lipid rafts

In vivo imaging: PET + fluorescence



cancer cell invasion in 3D in glandular (organoid) cultures



dual-color qdot FISH